International Journal of Finance and Commerce
www.commercejournals.com
Online ISSN: 2664-715X, Print ISSN: 2664-7141
Received: 19-03-2024, Accepted: 09-04-2024, Published: 02-05-2024
Volume 6, Issue 2, 2024, Page No. 33-38

Stock market development and economic growth of Nepal

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Abstract
This study seeks to examine the impact of the stock market development on economic growth from the period of 1994-2022. Secondary data has been used to analyze the impact of stock market development on economic growth. Data were sourced from the Ministry of Finance (MoF) and World Development Indicator (WDI). The stock market performance has been measured by market capitalization, number of listed companies, paid up capital and NEPSE index; and the economic growth was represented by economic growth. This study employed descriptive statistics and inferential statistics. The analysis finds out that there is a long run co integration in the data. From the result of regression analysis this study came to conclusion, most of the values as positive, which signs are expected and some of the value have negative sign which in unexpected part of the study. From the result of the analysis conducted by the study and hypothesis tested, it was concluded that stock market development has a positive relationship on economic development in Nepal.

Keywords: Stock market development, economic growth, World Development Indicator

Introduction

The prevalent belief that "finance" is a crucial component of economic growth has been reinforced by the growing significance of financial markets around the world. As a result, the focus has continued to be on stock market expansion and economic growth. The stock market, as a key economic pillar, has a significant impact on the development of business and industry, which has a significant impact on the overall health of the nation's economy. This is the justification for why the country's central bank, government advisors, and business organizations all closely monitor the operations of the stock market.

Many academics have studied the relationship between GDP growth and stock market performance, and they have come to the conclusion that the role that stock market success plays in increasing GDP cannot be ignored. Stock performance is vital to GDP performance since it is a key element of the idea advanced for higher output (Nazir, Nawaz, & Gilan, 2010) [10].

In the financial sector, the growth of stock markets has been significant. Researchers have been prompted by the growth of stock markets to examine how it relates to global economic growth and country development. According to studies, a country's economic growth and stock market performance are positively correlated. Studies are being conducted to identify the factors responsible for the growth of stock markets in various countries while keeping this link in mind. In order for government institutions to develop and target policies that may aid in the development of stock markets, which further aids in the economic development of the state, researchers from all over the world are working to better understand the drivers (Salameh & Ahmad, 2022) [13].

According to numerous studies, the rise of the stock market can enhance growth performance due to its favorable impacts on capital flows, diversification of investment risk, pooling of funds for long-term industrial projects, and availability of necessary liquidity. Financial innovation is driven by financial market development increased efficiency, resource allocation, and technical development (Gregorio & Guidotti, 1995) [6]. One of the main forces behind economic growth is the expansion of the stock market, which has a high positive link with industrial production on its own (Wong & Zhou, 2011) [16]. The only organized capital market, the banking sector, while ignoring the stock market's contribution to economic expansion (Stiglitz & Weiss, 1981) [15]. On the other hands, not only banking sector but also stock market development contribute to economic expansion (Beck & Levine, 2004) [3]. Industrial companies can access long-term capital because a highly liquid stock market enables portfolio investors to buy financial assets (Demirgüç-Kunt & Levine, 1996) [5].

Both from the perspective of investors and the industry, the stock market is significant. There are some variables that may be used to gauge the growth of stock markets, and as a result, they also directly affect the nation's economic development. Liquidity, stock market capitalization, and stock exchange turnover are a few of these variables (Levine & Zervos, 1998) [9].

In Nepal, the first transaction of primary market was taken place in 1937 when Biratnagar Jute Mills and Nepal Bank Limited issued shares of common stock for the public. The official forum for secondary market trading started with the establishment of Securities Marketing Center in 1976. Later on Nepal Stock Exchange (NEPSE) limited replaced this market in 1993 and formal secondary market trading in NEPSE started in 1994. In June 2023, 226 companies are listed in Nepal Stock Exchange. Securities Board of Nepal (SEBON) is the apex regulator of securities market in Nepal. It was established under Securities Act of 1984. The Securities Act of 1984 was later replaced by Securities Act, 2007.

This study addresses the necessity to establish a connection between economic expansion and stock market performance in Nepal. The justification behind this was that in order for the stock market to function successfully, there must be economic development; hence, investors must be pursuing expansionary strategies that call for additional funding from

the stock market, whereas savers are perceived to have excess capital for investment. Strong stock market performance, particularly during times of rapid economic expansion, is essential for resolving the allocation issue and ensuring that borrowers have access to the surplus funds from savers. This study's main focus is on the connection between Nepal's stock market performance and economic growth. To address the limited empirical evidence regarding the impact of the stock market on economic growth or vice versa in Nepal.

Objectives

The objective of the study is:

- To assess the effect of stock market development on economic growth of Nepal.

Limitations

The limitations of study are

- Finding and suggestion may not be applicable exactly to other private and public sector.
- This study is fully base on secondary data to finding depend upon the trust worthiness of source of data.
- Only market capitalization, paid up capital, number of listed securities, NEPSE index variables are taken as independent variable and only economic growth is taken as dependent variable.
- Only selected statistical tool is used.

Literature Review

A literature review refers to the works that were read in order to comprehend and investigate the study problem. Review is the methodical, careful, and critical summarization of the published literature in a field of study. How topics in the research area have been handled by others, and what knowledge they've picked up? Additionally, a study of the literature suggests that outline the main points of the research papers or studies and make clear indications any connections to related research in the area.

This article seeks to determine whether there is a link between stock market development and economic growth in developing economies such as Pakistan. From 1971 to 2006, the data set contains annual time series data. To determine the integrating order of the study's variables, we used two new tests: DF-GLS and Ng-Perron. J-J Co-integration and ARDL bounds testing approaches are used to assess long-run resilience. Engle-Granger causality and ARDL tests are used to study long-run causal links and short-run dynamics, respectively. The results are energetic and sturdy, indicating that the development of the stock market is an essential element for economic progress. Following the finding of the order of integration, the studies revealed that there is a long-run relationship between stock market development and economic development (Shahbaz, Ahmed, & Ali, 2008) [14].

Examining the impact of stock markets on economic growth in Bangladesh, India, China, and Singapore is the primary goal of this study. Annual cross-country time series data from the years 1991 to 2012 are used, along with an analytical method called autoregressive distributed lag bound testing. Incoming FDI is determined to be statistically negligible for all nations other than China and to have a positive relationship with economic growth in every country but India. In the near term, the stock market also positively affects economic growth across the board, though only significantly in China and India. Only for Singapore does FDI have a large and beneficial impact on growth. The findings show that in Bangladesh and Singapore, the inflation variable is statistically significant. The study's empirical results show that FDI inflows and stock market development are crucial to the process of economic growth and development in the chosen countries (Azam, Haseeb, Samsi, & Raji, 2016) [2].

The findings imply that the stock market development index and economic growth have a long-term, unidirectional causal link. The size and liquidity of the stock market are important factors, demonstrating the ability of the stock market to raise funds and boost trading ease and risk diversification through stock trading. Market inflation, the control variable, is displayed. There is no discernible effect on either of the key factors studied. The data were collected from 1994 to 2019 (Bhattarai, Gautam, & Khatri Chettri, 2021) [4].

Using a Vector Error Correction Model (VECM), this research explores the causal relationship between stock market development and economic growth in Germany from 1965 to 2007. The goal of this research was to investigate the long-run relationship between these variables using the Johansen co-integration technique based on traditional unit roots tests. Granger causality tests revealed that there is unidirectional connection between stock market development and economic growth, with the direction of causality moving from stock market development to economic growth (Antonios, 2010) [1].

Using quarterly secondary data, the study explores the causal relationship between stock market performance and economic growth in Kenya from 2001 to 2010. The goal was to experimentally investigate the relationship between stock market performance and economic growth using the Granger causality test. According to the data, the causality between economic growth and the stock market goes unilaterally or fully in one direction from the NSE 20-share index to the GDP. According to the findings, the movement of stock prices on the Nairobi stock exchange reflects the country's macroeconomic situation and can thus be utilized to forecast the future route of economic growth (Olweny & Kimani, 2011) [12].

This article examines the impact of Bangladesh's stock market development on its economic growth from 1989 to 2012. To estimate the long-run equilibrium link between the variables, researchers employed the Johansen Co integration test, and the Granger causality test was used to establish the causal relationship, while the model was estimated using the error correction model (ECM). The results of the Johansen co-integration test reveal that the Bangladesh's stock market development and economic growth are inextricably linked. This suggests that, there is a long run link between stock market development and economic growth. The outcomes of the causality test suggest a unidirectional connection from stock market development to the economic growth (Hossin & Islam, 2019) [7].

The goal of this study is to investigate the long-term relationship between financial market growth and economic expansion in Belgium. The information was gathered on financial development indicators in Belgium. For the years 1830 to 2000, we used annual statistics from the Brussels stock market (BXS). The results were obtained using the VECM approach. Using co integration analysis, the researchers investigate the direction of causality between two variables. We find substantial evidence that the

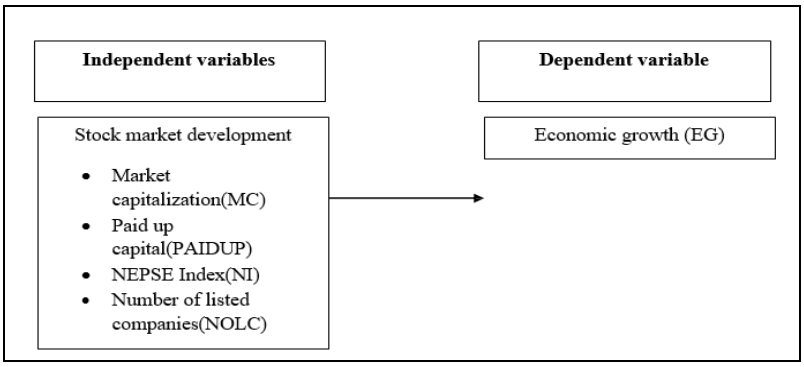
expansion of the stock market caused economic growth in Belgium, particularly between 1873 and 1935. The time-varying character of the link between stock market development and economic growth is explained by institutional changes affecting the stock exchange (Nieuwerburgh, Buelens, & Cuyvers, 2006) [11].

The goal of this research is to add to the empirical data by recognizing the significance of stock markets in the financial system and, as a result, their causation to economic growth and vice versa. The autoregressive distribute lag model (ARDL) with bound testing procedures was employed in the study, and the sample included quarterly time-series data from 2001q1 to 2019q2 in Tanzania. The findings imply that the development of the stock market has both negative and positive causation for both short-run dynamics and the long-run link with economic growth. Economic growth is determined to only cause and negatively link to liquidity in the short and long run. The findings indicate a primarily unidirectional causality flow from stock market development to economic growth, with a minor causality flow from economic growth to stock market development, as reflected by stock market turnover, which is a proxy for liquidity (Kapaya, 2020) [8].

Theoretical Framework

A theoretical framework is a conceptual framework that serves as the foundation for conducting research or examining a certain topic. It acts as a guide for comprehending and analyzing data, as well as developing hypotheses and research questions. The framework facilitates the organization of researchers' thoughts and ideas, making it easier to convey their discoveries and contribute to the existing body of knowledge.

Figure 1
Theoretical framework



Research Hypothesis

Based on the theoretical framework, this study proposed the following hypothesis:

H1: There is significant effect of market capitalization on EG.

H2: There is significant effect of paid up capital on EG.

H3: There is significant effect of NEPSE Index on EG.

H4: There is significant effect of number of listed companies on EG.

Research methodology

The methodical process used by researchers to conduct a study, gather pertinent information, analyze data, and draw findings is referred to as research methodology. It provides an organized framework for doing research, ensuring the findings' validity, reliability, and accuracy. Research technique is essential for ensuring that the research process is well-organized and that the outcomes are reliable. To achieve the goal of research, both descriptive and analytical research methods are used. The study utilizes time series data obtained from the Ministry of Finance and World Development Indicator spanning from 1994 to 2022. Economic indicators like economic growth, market capitalization, trading turnover number of listed securities NEPSE index is used as population and companies that are trading its share on NEPSE floor as a sample study. E-views12 has been used to analyze the correlation between EG and stock market development.

Empirical model

Model is expressed in equation

$EG = \beta 0 + \beta 1 lnMC + \beta 2 lnPaidUp + \beta 3 NI + \beta 4 NOLC + e$

Where,

EG= Economic Growth rate

LnMC= logarithm of markset capitalization Lnpaidup= logarithm of paid up capital NI= NEPSE Index

NOLC= Number of listed companies

e = error term

$\beta 0$ = Constant

$\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$ = Beta coefficient

Data analysis Descriptive statistics

Descriptive statistics are critical for analyzing the properties of a given data collection. They provide a brief description of the data and assist researchers in identifying patterns and linkages within the sample. Descriptive statistics are employed in the research to summarize the sample of the population under examination.

Table 1: Descriptive analysis

Variables	Mean	Median	Maximum	Minimum	Std dev	Normality
EG	4.424	4.670	8.977	-2.369	2.320	0.067
LNMC	12.139	12.686	15.204	9.416	1.926	0.285
LNPAIDUP	10.570	10.290	13.411	7.688	1.811	0.312
NI	736.917	389.700	2883.400	163.400	669.800	0.000
NOLC	158.241	142.000	237.000	66.000	57.367	0.221

Note: Author calculation using Eviews 12 student version.

Table 1 shows the result of mean value range from 4.4 to 736.91, indicating variation in their central tendencies. Based on this information, the data appears to be suitable for regression analysis, as it provides the variables and observations required for modeling relationships and making predictions. The Jarque-Bera test is a goodness-of-fit test that determines if the p-value is greater than 0.05 than the data distribution is normal.

Unit Root Test

Table 2: Unit root test

Variables	At level	At first difference
EG	-5.131 (0.0003)	
LNMC	-0.357 (0.9035)	-1.519 (0.4268)
LNPAIDUP	-0.294 (0.9137)	-4.972 (0.0004)
NI	3.533 (1.0000)	-6.481 (0.0000)
NOLC	-0.950 (0.7566)	-3.875 (0.0066)

Note: Author calculation using Eviews12 student version.

The results of the unit root tests in the table 2 shows that EG is stationary at level and remaining four variables LNMC, LNPAIDUP, NI and NOLC are not stationary at 5% level of significance. This suggests that these four variables have unit root. However after taking first difference the variables become stationary.

Lag length Criterion

Table 3: VAR Lag Order Selection Criteria

Lag	logL	LR	FPE	AIC	SC	HQ
0	-433.2909	NA	86597159	32.4659	32.7059	32.5373
1	-316.1856	182.1638	97899.42	25.6433	27.0832*	26.0715
2	-282.7267	39.6549*	64752.10*	25.0167*	27.6564	25.8017*

Note: Author calculation using Eviews 12 student version.

*indicates lag order selected by the criterion
LR: Sequential modified LR test statistic (each test at 5% level) FPE: Final prediction error
AIC: Akaike information criterion
C: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Table 3 shows the result of lag length criterion as per criteria the maximum lag length of variables is two.

ARDL Co-integration test

Co integration is a statistical property that indicates the presence of a long-run relationship between two or more non-stationary variables.

Table 4: ARDL Bound test

F-Bound test	Null Hypothesis: No levels relationship			
Test Statistics F-statistics	Value 5.7240	Signif 10%	I(0) 2.45	I(1) 3.52
K	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

Note: Author calculation using the Eviews 12 student version.

Table 4 shows F bound test result, F-statistic value of 5.7240 which is greater than the upper bound critical values at all significance levels (1%, 2.5%, 5%, and 10%). This suggests that we can reject the null hypothesis of no co-integration and conclude that the variables are co-integrated at all significance levels. Therefore, based on the F-bound test results, we can conclude that there is evidence of co-integration between the variables in the ARDL model.

Long run and short run dynamics

Table 5: Long run result of ARDL model

Variables	Coefficient	Std.Error	t-Statistic	Prob
LNMC	-1.0726	0.9305	-1.1526	0.2684
LNPAIDUP	-1.1339	1.0015	-1.1321	0.2766
NI	0.0048	0.0014	3.5412	0.0033
NOLC	0.0451	0.0156	2.8836	0.0120

Note: Author calculation using the Eviews 12 student version.

Table 5 shows the result of long run result of ARDL model. The p-value of LNMC and LNPAIDUP is greater than 0.05. It means that these two variables are insignificant at 5% level of significance. On the other hand NI and NOLC are significant at 5% level of significance as p-value of these variables is less than 0.05.

Error correction model regression

Table 6: Error correction model regression

Variables	Coefficient	Std.Error	t-Statistic	Prob
C	14.4131	8.4129	5.7546	0.0000
D(EG(-1))	0.4765	0.2156	2.2099	0.0443
D(LNMC)	-0.1735	2.1539	-0.0805	0.9369
D(LNMC(-1))	10.0864	2.8709	3.5133	0.0034
D(LNPAIDUP)	-2.0505	3.0696	-0.6679	0.0515
D(LNPAIDUP(-1))	-6.8843	3.7649	-1.8285	0.0889
D(NI)	-0.0040	0.0022	-1.8622	0.0837
D(NI(-1))	-0.0201	0.0046	-4.3682	0.0006
CointEq(-1)*	-.2.5146	0.4145	-6.0660	0.0000

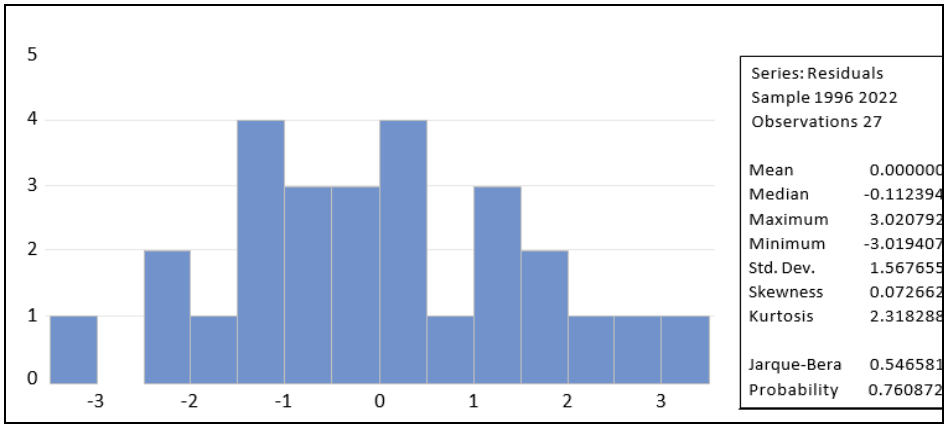
Note: Author calculation using the Eviews 12 student version.

The coefficient of CointEq (-1) is negative and statistically significant at the 5% level. This suggests that the system exhibits an error correction mechanism, where the dependent variable adjusts to restore the equilibrium relationship between the variables in the long run. In other words, if there is a deviation from the long-run equilibrium, the dependent variable will respond in the short run to bring the system back to equilibrium in the long run. The error correction term in the model captures the short-run dynamics of the adjustment process towards the long-run equilibrium. It is estimated to be 25.14%, indicating that about 25.14% of the deviation from the long-run equilibrium is corrected in each period.

Diagnostic test

The classical assumption test used in this Study considered of normality test,heteroscedasticity test, and linearity test. Normality test

Figure 2
Normality test



Note: Author calculation using Eviews 12 student version.

Figure 1 shows the result of Jarque-Bera test for normality of residuals yields a test statistic of 0.5465 and a p-value of 0.7608. Since the P-value is greater than the significance level of 0.05, we cannot reject the null hypothesis that the residuals are normally distributed.

Heteroskedasdicity test

Table 7: Heteroskedasdicity test Breusch-pagan-Godfrey

F-Statistics		2.6975	Prob F(12,14)	0.0399
Obs*R-squred		18.8483	Prob Chi-Squred(4)	0.0923
Scaled explained SS		3.3402	Prob Chi-Squred(4)	0.9926

Note: Author calculation using Eviews 12 student version.

Table 7 shows the result of heteroskedasdicity test. In this test, we can see that the F- statistic is 2.6975, and the associated probability value (p-value) is 0.0399. The p-value is less than the significance level of 0.05, we rejet null hypothesis of homoskedasticity. Based on the results of the Breusch-Pagan-Godfrey test, we can conclude that there is evidence of heteroskedasticity in the regression model.

LM test

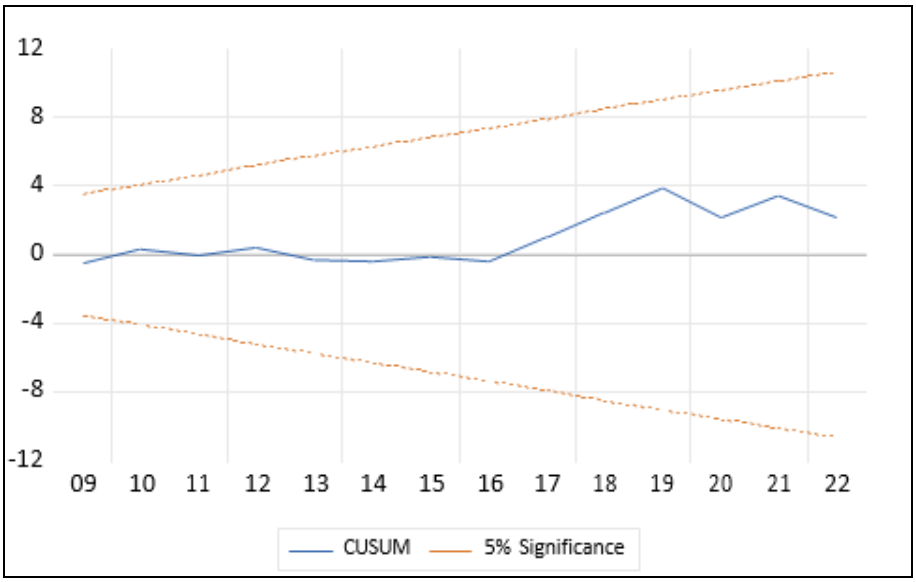
Table 8: Br1eusch-godfrey serial correlation LM Test

Null Hypothesis: no serial correlation at up to 2 lags			
F-statistic	0.5344	Prob. F (2,12)	0.5993
Obs*R-squared	2.2081	Prob. Chi-Squared (2)	0.3315

Note: Author calculation using Eviews 12 student version.

Table 8 shows the result of Breusch-godfrey serial correlation LM Test. The null hypothesis is no serial correlation at up to 2 lags. The p-value is greater than 0.05, which indicate that the acceptance of null hypothesis. Therefore we can say that is no autocorrelation in regression model up to 2 lags.

CUSUM test
Figure 3 *CUSUM Test*



Note: Author calculation using Eviews 12 student version.

The line graph CUSUM test chart does not cross the threshold line or one of the confidence bounds; it suggests that there is no evidence of a significant change in the mean of your ARDL model over time. This result is generally a good indication that authors ARDL model is providing a stable and reliable estimation.

Ramsey reset test

Table 9: Ramsey reset test

	Value	df	Probability
t-statistic	1.8954	13	0.0805
F-statistic	3.5926	(1, 13)	0.0805
Likelihood ratio	6.5882	1	0.0103

Note: Author calculation using Eviews 12 student version.

The results of the Ramsey Reset Test indicate that the inclusion of nonlinear terms in the regression model did not yield statistically significant improvements. The t-statistic value of 1.8954, with 13 degrees of freedom and a corresponding probability of 0.0805, suggests that the added nonlinear terms did not have a significant impact on the model's fit. This implies that there is no strong evidence to support the existence of omitted variables or nonlinear relationships between the variables in the original linear regression model.

Conclusion

This article examines the effect of the stock market development on economic growth from the period of 1994-2022. In the study some of the coefficient are positive, so the relationship between stock market and economic growth in Nepal. In Regression analysis most of the values as positive, which signs are expected and some of the value have negative sign which in unexpected part of the study. From the result of the analysis conducted by the study and hypothesis tested, it was concluded that stock market development has a positive relationship on economic development in Nepal.

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